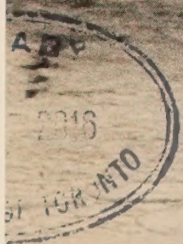


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**Policing our enlarged coastal fishing zones**





*Canada has shown increasing interest in the proper management of natural resources and in 1977 became one of 50 nations which have extended their offshore jurisdiction to 200 miles. A new licensing system designed to ensure the reasonable exploitation of the sea's wealth, both by Canadian and foreign vessels, must now be enforced by sea and air patrols.*

## Policing our enlarged coastal fishing zones

*Ralph Travis*

When John Cabot sailed west from England to discover Newfoundland for King Henry VII in 1497, he reported that the codfish in the Grand Banks east and south of the great island were so thick that they impeded the passage of his ships. Since that time, the waters surrounding Canada have been fished and overfished until today, far from being plentiful enough to slow the passage of ships, the fish are in some cases facing extinction.

It was to counter this danger that on New Year's Day in 1977, Canada declared its jurisdiction over ocean fishing within 200 nautical miles from the coast. Canada was not the first country to assert such authority beyond the 12-mile limit of our sovereignty in coastal waters. Peru and

Chile have claimed a 200-mile limit for decades. The United States followed Canada's lead in March 1977.

It was not a sudden decision on Canada's part. Canada had played an active part at the Law of the Sea Conference in developing the 200-mile zone concept and extended its jurisdiction in conformity with the consensus which emerged from that conference. For three years previously, Canada had participated in a joint enforcement scheme agreed to

by the International Commission for the Northwest Atlantic Fisheries. This was purely voluntary; Canadian inspectors could do nothing but complain to the nation whose flag an offending vessel had been flying. Bilateral agreements had also been signed with Norway, the USSR, Poland, Portugal and Spain, which collectively caught 88% of the fish taken by vessels of foreign registry operating in waters of primary Canadian interest.

These arrangements, however, did not give the protection needed to save several species of fish, nor to keep foreign vessels from scooping up all the fish in an area in enormous nets, and then discarding the ones they did not need. More positive control was required to improve this

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situation, and this meant stronger and more determined enforcement.

Declaring the 200-mile fishing zone has not banished foreign vessels from the waters. Russian ships, for instance, catch 35% of all the fish taken off Newfoundland. However, the declaration did require setting up a licensing system. Officials, who might well be called sea lawyers, wrote 40 pages of new regulations to tell the ships what they can or cannot do under Canadian law.

Before a foreign ship drops its nets in Canadian waters it must have on board a Canadian licence stating where and when it can fish, what species it can catch, what type of gear it can use, and what its quota is. It must also notify the Fisheries & Marine Service 24 hours before it enters Canadian waters and 72 hours before it leaves.

Once within the 200-mile limit, ships must be kept under surveillance. This is no small task, since more than 1,915,500 sq. km. are watched, over 1,515,000 sq. km. on the Atlantic Coast and 400,000 on the Pacific — an area almost one-fifth the size of all of Canada. (*Note: these figures include the waters of the Bay of Fundy, Gulf of St. Lawrence and Queen Charlotte Sound, which usually are considered to be internal waters, but because some foreign fishing is allowed, they must be patrolled as well.*)

Surface vessels and Tracker aircraft share the task, annually putting in 1,650 operational sea days on the East Coast and 495 on the West, plus 3,750 and 480 flying hours respectively; Argus aircraft fly an additional 700 hours yearly on a multi-task basis.

The aim is to board as many vessels as possible, a reasonable target being a third of the foreign vessels and a sixth of the Canadian ships each month, and also to look at all waters from the air once a week. Areas of concentrated fishing activity, of course, get more attention.

To do the job, fishing inspectors are carried by ships from three au-



*Crewmen prepare to process a large catch on a Russian trawler. The U.S.S.R. has been among the worst offenders against the new law. In 1977, it paid nearly twice as much in fines as all the other nations combined. Depending on the seriousness of the charge, a breach of regulations could result in a warning, or confiscation of the catch, impoundment of the ship, and even imprisonment of the captain for up to two years.*

thorities. Eight offshore patrol vessels belonging to the Dept. of Fisheries & Environment do 68% of the surface work, Ministry of Transport ships cover 12%, and ships of the Canadian Armed Forces, which in happier times would have belonged to the glorious Royal Canadian Navy, do 20%. All the airborne work is carried out by the Canadian Forces, with 15 Grumman Tracker aircraft (once also belonging to the Navy) and two Argus squadrons of six aircraft each. Three Trackers plus one Argus squadron are in the West, and the rest on the East Coast.

The ships and aircraft are careful-

ly controlled on their missions. Control is provided with the help of a computer-based system, code-named *Flash*. This is used in scheduling patrols. The computer "main-frame" is in Ottawa, with terminals at St. John's, Halifax and Vancouver. The system's memory holds data on every vessel fishing or supporting fishing operations in Canadian waters.

Reports from each vessel telling its weekly catch, its actions, the times and places of entry into fishing zones and of its departure, are typed into the system.

All reports of sightings by ships and aircraft and all reports of board-





*The Canadian government aims to inspect about 1/3 of foreign, and 1/6 of Canadian vessels each year. Inspectors are shown boarding a fishing vessel.*

ings and inspections are entered.

*Flash* provides information, constantly kept up-to-date, about those vessels which are at sea in Canadian waters, which have or have not reported as ordered, which ships have not been inspected, and which ones have not been sighted recently. Information is as complete as possible, including the names and addresses of the captains, the sizes and descriptions of the vessels, their home ports, what each ship is licensed to fish for, and where each is authorized to be. *Flash* provides each patrol ship and aircraft with a list of the vessels it should expect to observe on its travels.

Surface patrols operated by Fisheries vessels are made in the *Nonia*, 214 ft. long, and the *Cape Roger*, 205 ft; the *Chebucto*, 180 ft; and two 120-ft. fast boats the *Cape Harrison* and the *Louisbourg*; all stationed on

the East Coast. The West Coast has the *Tanu*, the *Howay* and the *Laurier*. All are designated "CGS" for Canadian Government Ship.

Naval vessels, mostly destroyers, are also called into action. They may rather overpower a situation with greater capability than any ordinary Fisheries patrol craft; but common prudence demands that the country make best use of its existing ships and avoid needless capital expenditures for new vessels and equipment. Moreover, the armed forces can be described as the ultimate expression of the coercive power of the state at sea. It can play a role in the enforcement of Canadian maritime law which no other department of government can easily duplicate.

The vessels steam up to the fishing craft, and inspectors—usually in pairs—proceed to board them by means of inflatable rubber boats. At one

time surf-boats were used, but their manufacturer went out of business. The rubber boats have several advantages. In heavy weather, when waves slam them against the sides of fishing-vessels, neither suffers any harm, and nor does the leg of an inspector who has missed his step. Falling back into the rubber boat is also a lot less painful than if it were an old-style wooden boat.

Once aboard the ship, inspection begins. Language is a problem, although many things which must be reported will speak for themselves—for instance, the type of fish caught and the kinds of nets. Some inspectors are multilingual, while in some cases interpreters are taken along. A book with a list of questions in several languages is carried, allowing the inspector to indicate with a forefinger what he wants to know, and for the fisherman to reply by the same method. In many cases the inspector can interpret the ships' logs even if the entries are in a foreign language, since they are mostly figures anyway. Conversations with ships' crewmen provide valuable information for *Flash*, while providing a great deal of data for scientific winnowing later.

Fishing vessels logically gather where the fish are, allowing inspectors to board one vessel after another. This can only be done by day. At night the Fisheries ships stand off, primarily to avoid collisions with the ships which keep right on trawling.

When morning dawns, the next problem arises—which ships have already been inspected? The best way to keep track of the ships is with the help of a helicopter which can direct a patrol ship to the particular vessel next to be inspected. Helicopters are also very useful to identify ships picked up by radar, since all ships register the same kind of amorphous blip on the radar screen, and merchant ships proceeding on their lawful occasions are not candidates for inspection. Naval vessels sailing on East Coast fisheries patrols carry helicopters; the new 205-ft. Fisheries





*Many ships of large capacity, like this Russian trawler, are able to remain in foreign waters for years. In 1977, Russian ships predominated in Canadian waters (202 compared to 86 Spanish, 77 Japanese, 45 Portuguese, 44 Norwegian, 38 Polish, 34 Danish, etc.).*

vessels will carry them too.

Fisheries vessels usually remain at sea for about 10 to 14 days at a time. This is considerably less than the ships they watch. Russian trawlers make extended cruises, while their factory ships stay on the Grand Banks for years! One ship has been there for two years, changing crews at intervals. It is getting rusty by now.

The surface vessels are the only craft which can arrest an offending ship, but aircraft in "hot pursuit" can maintain contact with a poacher until a surface vessel can catch up to it.

Air surveillance is important. It is done on the East Coast by VP 880 Squadron, based at CFB Shearwater, the land-based naval air station which once was home to the aircraft travelling aboard HMCS *Bonaventure* when Canada still possessed an aircraft carrier. The squadron operates 15 CS2F Tracker aircraft, a sturdy, snub-nosed aircraft designed by Grumman and built under licence in the 1960s by de Havilland in Toronto. Built solidly to withstand the battering of catapult launchings

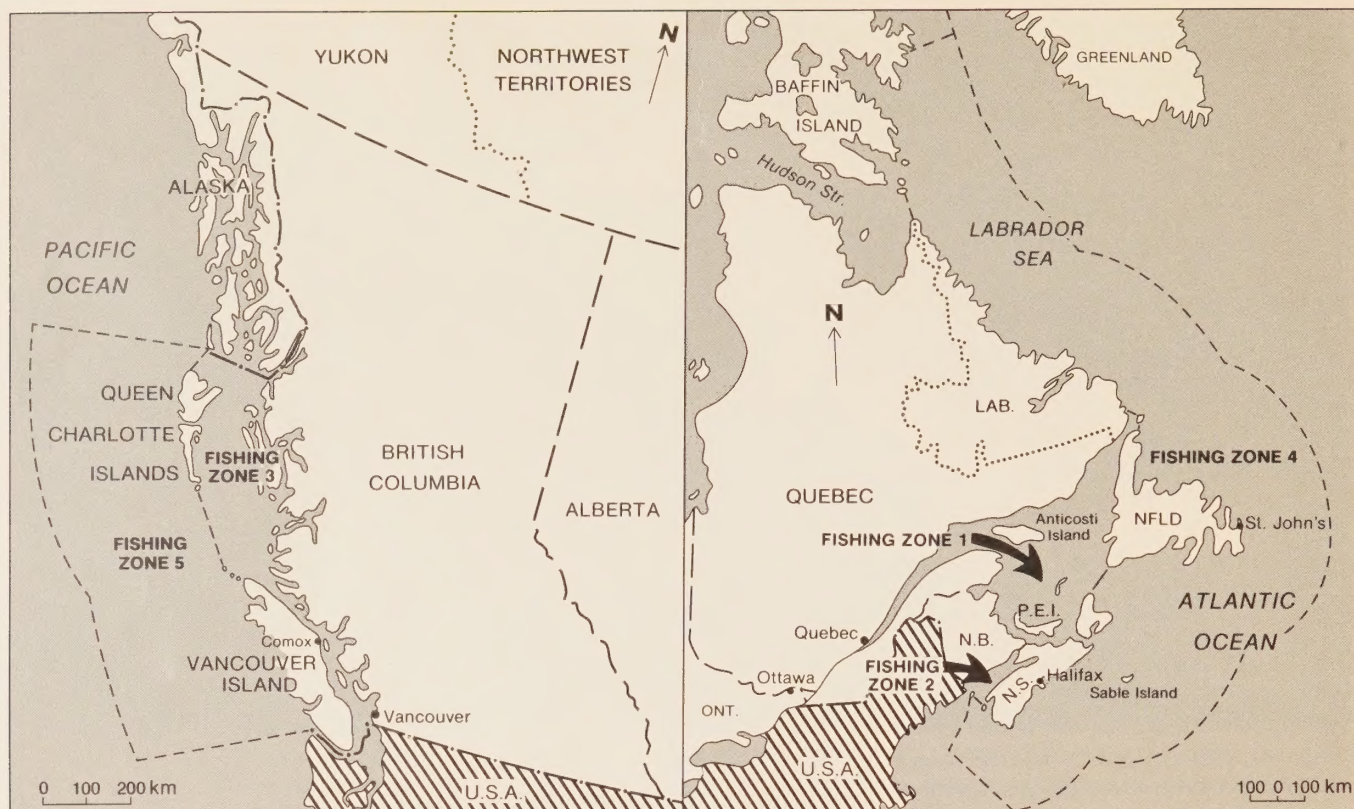
from and "crash-stop" landings on carriers with pitching decks they would seem to laugh at normal take-offs and landings and bid fair to last forever.

One Tracker whose pilot misjudged an approach to a Newfoundland airport flew through 240 metres of treetops. When it landed, a truckload of branches was removed from



*Inspectors prepare to board a Portuguese fishing vessel.*





*The extended boundaries of Canada's fishing zones are shown on these maps.*

various places in the aircraft, including one 8-in. tree-trunk. The crew was uninjured, and the plane is still flying.

The crew consists of two pilots and an observer, a non-commissioned officer whose main duty is operating the radar. One pilot commands the aircraft, while the other is the co-pilot and navigator. The plane carries a Canadian Marconi Doppler navigation set which indicates groundspeed and track; the co-pilot uses this information to map his course on a plotting-board, using the time-tested tools of a Douglas protractor, a pair of dividers, a pencil and an eraser. Photographs taken by the co-pilot, using a hand-held camera, are developed after landing.

A patrol begins with a morning briefing in the base operations office, in which the crews are told about known traffic in their area, vessels of interest, and the weather. Patrol areas are usually circular, and are now well-known to the crews — "Shearwater Four," for instance.

They are designated by the latitude and longitude of the centre, and a radius, usually of 60 nautical miles. The crews fly to the farthest point and work their way back, using radar to pick out vessels in the area. The radar operator "homes" the pilot on the targets by reading the range and bearing of a "blip" on his radarscope while the co-pilot-navigator plots and watches their course to keep track of their position and direction.

Patrol altitude is about 300 metres, provided the base of the cloud-deck is that high. When actually investigating a vessel, the aircraft may drop as low as 15 metres for a photograph, and to make sure that the identification number on the boat is accurately read. Regulations say the numbers must be painted in figures one metre high, white on black. Sometimes they are not easily read. One boat had letters a metre high, right enough, but only about an inch wide. The Tracker had some interesting low flying to get close enough to read the letters. The aircraft had no trouble,

of course — it always had plenty of power, and after its aircraft carrier was decommissioned half a ton of anti-submarine gear was removed, making it even more responsive.

Crews become reasonably expert in telling what the fishing vessels are doing. Redfish, for instance, are characteristically pink, which makes it easy to see when a trawler is catching them. The gear used to catch the fish also gives clues as to the fish being sought. Trawlers use planing boards to regulate the depth of the trawl, and this gives an indication as to what species of fish is being fished for. The depth to which the boat is riding in the water, what the crew is doing on deck, and what nearby vessels are doing, all give information which is duly reported.

Missions usually last about six hours, long enough for a crew in a cramped and noisy aircraft. After landing, the crews fill out a "form purple" and a fishery report, telling the area covered, what vessels were in it and what they were doing, and



how the fishing was going. The crews take a keen interest in their jobs, and usually detect poachers on the first or second day of their depredations — very good detecting on such a big ocean.

Besides watching the fishing fleet, the aircrews check merchant vessels for pollution. This involves flying up to an oil slick, photographing it, then flying over the ship and photographing it to prove that the slick does not extend beyond the ship's bow, to refute a possible plea by the captain that he was just sailing into a slick left by somebody else.

Trackers are also called on to conduct searches for ships missing or unreported at sea. They put in 78 flying hours last fall looking for a missing trawler. They perform other tasks too, such as checking on the number of seals congregating on Sable Island, reporting whales, and checking on any marine life in general which they see.

No. 880 Squadron is assisted by No. 420 Squadron, a reserve squadron which commemorates one of the glorious squadrons of World War II, now based in Halifax; 880 Squadron has aircraft based at Shearwater, at St. John's, and at Goose Bay, where the folding wings of carrier-designed aircraft make them easier to fit in the hangars.

On the West Coast VU33 Squadron flying three Trackers does similar work, assisted by big, lumbering Argus aircraft flying out of Comox. The 20-year-old Argus may seem heavy and clumsy, but it still patrols 20 knots faster than the Tracker.

Foreign ships generally are law-abiding. Only five vessels have been arrested for poaching in the period since surveillance began in earnest on New Year's Day 1977.

The vessels accused of fishing in forbidden waters did not give up without a fight. On two occasions on the East Coast when ships were taken to court, their captains disputed aircraft reports of what their positions had been, and produced fixes from a navigation aid called "Loran-C" to



*Inspectors are lowered from the CHEBUCTO, one of the patrol vessels operating on the East Coast, the only one still equipped with wooden, rather than rubber, inspection boats. At the same time that the jurisdiction of Canada was extended, the number of licences issued was cut from 1,500 to 500. Inspectors have the authority to arrest the offending captains and order their ships to the closest Canadian port.*

prove their case. The judges preferred to accept the radar fixes obtained by the Canadian aircraft. On the West Coast, however, a Russian ship got off on the basis of its Loran-C fixes, which differed from the radar fixes obtained by a Fisheries vessel. The need for more precise and reliable navigation equipment is obvious.

Surveillance, though energetic and so far seemingly adequate, presumably will be increased greatly with Canada's growing interest in ocean areas and with improved equipment and systems. The Fisheries Department would like new, longer-range aircraft but must be content in the meantime to have new equipment placed aboard the aging Trackers —

an Omega navigation set made by Canadian Marconi, a better radar built by Litton Systems Canada in Toronto, a new instrument landing system, and a body-mounted camera. The patrol ships and aircraft must go farther afield, to such places as the waters off Baffin Island, where extensive shrimp fisheries are waiting to be exploited. The waters off the Flemish Cap, 600 km. east of St. John's, will also require more patrol time. Modern technology will be called on, but men in ships and aircraft will continue to patrol, keeping watch over the waters, and keeping within reason the inroads of man, the great predator, upon the creatures of the sea, for the good of all creation.

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